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Monterey, California, Naval Postgraduate School

Computer Center
News Letter
NAVAL POSTGRADUATE SCHOOL
MONTEREY, CALIFORNIA

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TABLE OF CONTENTS — PAGE

NEW COMPUTER

Another major milestone has been passed on the long road to acquisition of a system to replace our aging and overworked IBM 360/67. (It will be 13 years old in March.) On Thursday, 3 January 1980 at a meeting in the ADP Selection Office (ADPSO) in Washington, D.C., the Source Selection Advisory Council (SSAC) approved the Solicitation Document for the new system. It should be released to industry by publication time of this newsletter. The SSAC also approved the system selection plan. Proposals will be examined for satisfaction of the mandatory technical requirements. Qualifying systems will then be benchmarked at vendors' test sites across the country.

Total system life costs will be computed for systems that pass the tests. The award will then be made to the vendor who offers the system with the lowest total overall costs over an expected life of eight years.

(The SSAC has 10 members--five from ADPSO, one from Naval Data Automation Command (NAVDAC), one from OP-942 and three from NPS--Provost J. Borsting, and Professors G. Brown (OR) and R. Elsberry (Meteorology).)

USER SERVICES TALKS FOR WINTER QUARTER

Six talks will be offered during this quarter to assist users of both of our operating systems. If you are interested in attending any session, insure yourself a seat by signing up on the appropriate sheet posted in In-146, the Consulting Office. Please do so at least 48 hours before the scheduled time. If you sign up, we'll let you know if the location is changed or if the talk has been cancelled for any reason.

1. INTRODUCTION TO JOB CONTROL LANGUAGE
Thursday, January 24 at 1510, In-119
Speaker: Fran Wheeler

This talk deals with the various types of job control statements, their purposes and formats. It is intended for anyone who wants to understand the relationship between job control language, the user's program and the operating system (OS/MVT).

2. INTRODUCTION TO SPSS
Monday, January 28 at 1510, In-119
Speaker: Jane Foust

The speaker will describe the Statistical Package for the Social Sciences and show how it can be used for almost any statistical problem. Topics include general problems of data analysis, measurement, and efficiency hints. Examples of actual usage, including required job control language, will be shown. This talk is intended for any user who wants to use SPSS on our system.

3. INTRODUCTION TO CP/CMS
Wednesday, January 30 at 1510, In-119
Speaker: Fran Wheeler

Topics to be covered include: log-on procedures, types of users, system modes or environments; use of the editor; entering, editing, compiling and running a Fortran program; rudimentary debugging at the terminal and miscellaneous handy commands. This talk is intended for the beginner.

4. MAGNETIC TAPE USAGE UNDER OS/MVT
Monday, February 4 at 1510, In-119
Speaker: Jane Foust

Topics include physical characteristics of tapes, the Center's policies, job control language for tape processing, determining tape characteristics, examples of usage, and commonly used utility programs. This talk is intended for users who will be involved in tape processing.

5. INTRODUCTION TO EXEC PROCEDURES
Wednesday, February 6 at 1510, In-119
Speaker: Roger Hilleary

EXEC files in CP/CMS are a powerful tool for experienced users. The EXEC command allows a file of predefined CMS commands to be used as a single command. Various uses for EXEC will be demonstrated in this talk.

6. OPTIMIZING LARGE FORTRAN PROGRAMS

Monday, February 11 at 1510, In-163
Speaker: Roger Hilleary

Topics include use of optimizing compiler, self-help techniques, proper use of subroutines, overlays, and tools to locate areas of code for special attention.

STAFF NOTES

Kathryn Strutynski, who had been a member of our systems programming staff since 1967, resigned recently. Kathryn will be working for Digital Research in Pacific Grove on software for microprocessors. Digital Research was formed, and is run, by Gary Kildall, ex-Professor of Computer Science at the School. The Center will miss her enthusiasm and skills, and we wish her every success in the future.

Dennis Mar joined the user services staff at the beginning of January. He has worked previously as a mathematician, statistician and data manager at the Presidio of Monterey and Fort Ord. Dennis has an M.S. in statistics from Iowa State University. He will become the Center's primary consultant in statistics and the use of statistical packages, e.g. SAS and SPSS.

WEEKLY DISK CLEANUP TO BE EXTENDED

Effective March 1, expired data sets on 2314 volumes MARY, LINDA and DUFFY will be scratched each week. This policy has been in effect previously for 3330 volumes DISK01 and DISK02. Owners of data sets on public volumes should be receiving monthly reports from the Accounting Services Office indicating data sets that are about to expire.

AVOIDING LARGE FORTRAN DECKS

A significant number of users work with large Fortran programs containing many subroutines. In many cases most of the subroutines and/or the main program have been completely checked out; reloading the source decks of such modules is wasteful in many ways. It also slows up the hot card-reader line.

As a better alternative, all the debugged modules may be link-edited into a load module and placed on a public disk. (Remember, however, that DISK03 is purged at the end of each quarter.) The following job control language illustrates how this may be done.

```
// (standard green JOB card - see Section 3.3.2.1 of the User's Manual)
// EXEC FORTCL,PARM.LINK='NCAL,LIST'
//FORT.SYSIN DD *
   (source deck of debugged subroutines, functions, and/or main program)
/*
//LINK.SYSLMØD DD DSNAME=LNNNN.XXXXXX(YYYYYY),DISP=(NEW,KEEP),UNIT=3330,
//             VOL=SER=DISKXX,SPACE=(TRK,(5,1,1))
/* (orange)
```

Here LNNNN.XXXXXX is a data set name to be chosen by the user, e.g. S1234.MYMOD. YYYYYY is a member name, e.g. CALCZZ. DISKXX is a disk to be chosen, e.g. DISK03.
The SPACE allocation should be chosen as discussed in Section 3.6.4 of the User's Manual. Specification of an expiration date is required if DISK01 or DISK02 is used. (See Section 3.6.4 of the User's Manual.)

Then the source decks for modules still subject to revision can be used with those link-edited as above by using JCL as follows:

```
// (standard green JOB card - see Section 3.3.2.1 of User's Manual)
// EXEC FORTCLG,REGION.GO=250K
//FORT.SYSIN DD *
   (source modules still being altered)
/*
//LINK.USDD DD DSNAME=LNNNN.XXXXXX,UNIT=3330,
//             DISP=SHR,VOLUME=SER=DISKXX
//LINK.SYSIN DD *
ΔINCLUDE USDD(YYYYYY)
ΔENTRY MAIN
/*
//GO.SYSIN DD *          }
             [data]      } optional
/*
```

Here REGION.GO must correspond to the requirements of the particular job;
USDD is a DD name to be chosen by the user;
LNNNN.XXXXXX is the data set name as chosen before, e.g. S1234.MYMOD;
DISKXX is the disk chosen before, e.g. DISK03;
YYYYYY is the member name as chosen before, e.g. CALCZZ.

It is important to know that the source deck for any module previously included in CALCZZ could be used in a revised form in the run shown immediately above. If this is done, the new version will be executed instead of the previous version in the stored load module. (The linkage editor processes the modules resulting from the source decks before other input.)

If a large number of such revisions are required, a new load module may be prepared by using JCL as shown in the first part of this article. However, the old module must first be scratched. (See Section 3.7.3 of the User's Manual.) See the Programming Consultant (In-146) for any required help.

SAVING PAPER IN SPSS

The recent paper shortage and rising cost of paper are of increasing concern to the Computer Center. We urge our users to help reduce the paper demand by considering alternative record storage forms for some data and exercising good judgment in paper usage habits.

The following suggestions appeared in the State University System of Florida's Update, reprinted from the University of Pittsburgh's Pitt Programming Notes

and are directed to SPSS users, but there are helpful clues for others too:

1) When using FREQUENCIES, use Options 5 or 6. These cause the tables to be printed in a condensed format. If you want the statistics and not the frequency tables, use OPTION 7. Note, however, that value labels are not printed if the condensed format is used.

2) In REGRESSION, OPTION 6 suppresses printing of the step-by-step table, while OPTION 7 suppresses printing of the summary table.

3) In MULT RESPONSE, OPTION 11 causes tables to be printed in a condensed format. OPTION 12 causes a table to be printed in condensed format if it is over one page long.

4) In AGGREGATE, STATISTIC 3 should be used when aggregating a large data file. This statistic reports on only the first 10 cases being aggregated. This is sufficient to determine if the procedure is working as desired.

5) If a variable is continuous, use CONDESCRIPTIVE instead of FREQUENCIES. CONDESCRIPTIVE calculates statistics that are appropriate to continuous variables, but does not produce frequency tables. Such tables are not meaningful for continuous variables since for a truly continuous variable each value will occur only once.

6) Use PRINT BACK NO when you are satisfied that the formats, labels, and other control information are correct. This suppresses printing of this information. Use PRINT BACK CONTROL to avoid the format expansion of previously verified input formats.

7) Instead of using STATISTICS ALL, ask only for the statistics you need. In particular, if you need no statistics at all, omit the STATISTICS card. Doing this not only saves paper, it also saves computer time--an unnecessary statistic can take longer to compute and use a larger region size than the procedure itself.

8) An EDIT run, obtained by using the EDIT command, allows you to check the program's syntax, INPUT FORMAT, labels, etc., without doing the procedures. This lets you be sure that the program is correct before reading the data, doing the calculations and producing output that may be incorrect. In particular, you can check the correspondence between the VARIABLE LIST and the INPUT FORMAT by looking at the correspondence table produced by SPSS.

9) Before running your SPSS program, inspect your data carefully for errors. SPSS will not correct for bad data. If the data are not correctly laid out with respect to the INPUT FORMAT, or if they contain character data where they should have numeric data, the program may fail or produce false results. Individual values may be checked by inspection, or by writing a program to check them.

10) Be careful not to ask for redundant or unwanted tables. For example, specifying VAR01 TO VAR20 BY VAR01 TO VAR20 on a CROSSTABS card would produce 400 tables. More than half of these would be redundant. (For example, VAR01 BY VAR09 is equivalent to VAR09 BY VAR01, and VAR04 BY VAR04 is trivial.) In addition, some of these tables might be meaningless, such as GENDER BY NUMPREG, where NUMPREG is a subject's number of pregnancies.

11) Use the lines estimate parameter on the JOB card judiciously. While you need to specify enough lines to contain your listing, a close estimate will cut off a listing which, due to an oversight, is longer than you expected.

12) If your job fails to run to completion, you may still have obtained some of the desired tables. In such a case, the procedure card may be changed to do only the remaining calculations.

13) Using PAGESIZE NOEJECT effects the greatest paper savings by printing continuously over page breaks and removing all empty spaces at the bottom of pages.

NEW ADDITIONS TO THE COMPUTER CENTER LIBRARY

Books

Author	Title
Ackoff, Russell L.	The Art of Problem Solving
Donaldson, Hamish	Guide to the Successful Management of Computer Projects

Reports

No.	Title	Author
1344	Guide 49 - Virtual Coverage Report	Shields, T. E.

Proceedings

Organization/ Author	Title
Smedema, C. H.	Annual Review in Automatic Programming, Vol. 8

The Newsletter appears semiquarterly and is written by members of the staff, W. R. Church Computer Center (Code 0141), Naval Postgraduate School, Monterey, California 93940. Requests for further information or suggestions for articles for the Newsletter may be addressed to the User Services Manager, Code 0141 (In-133), x2752 (or x2573 for messages).

The Center provides batch-processing service under IBM 360/Operating System (OS/MVT/HASP, Release 21.8) and time-sharing service under CP-67/CMS, Version 3.2. These services are based on a dual-processor IBM 360 Model 67 system with 2.0 megabytes of core storage.

Distribution

List 3, plus: 1-A5, 125-B2, 3-B3, 1-B13, 3-F3, 1-F4, 1-F5, 1-F6, 60-Student Mail Center (Lobby)